

D Series



12 Volt Input Dc to Ac Inverter

D12LD60J

The D12LD60J is a generic dc to ac inverter designed to generate 6 marms into a 500 - 700 volt load (CCFT) from a nominal 12 volt dc source.

FEATURES

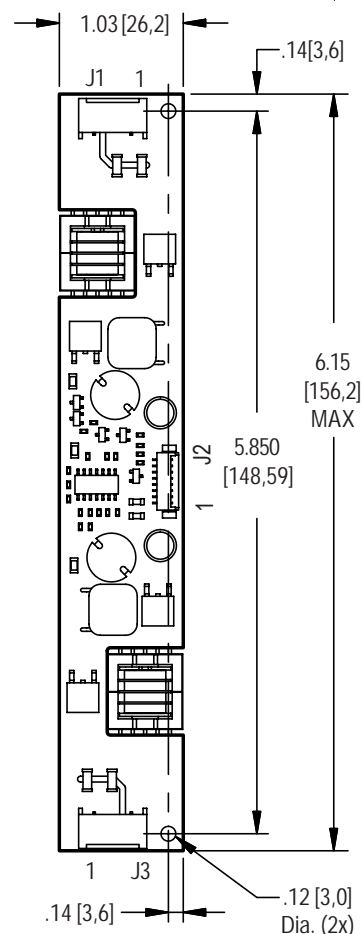
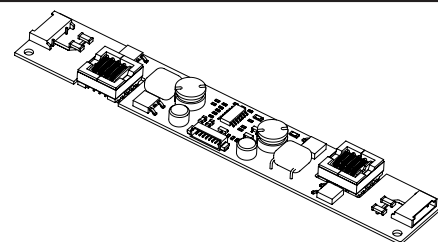
- Low Profile
- Display compatible connector
- High efficiency

PHYSICAL SPECIFICATIONS

Size:	6.15" x 1.03" x .32"
(without input connector)	(156,2mm x 26,2mm x 8mm)
Weight:	26 grams
Operating Temperature:	0° to +70°C
Storage Temperature:	-20° to +85°C
Humidity:	95% RH Max

Characteristics	Value	Units	Note(s)
Input Voltage	-0.3 - 13.2	Volts dc	
Input Current	.80 typ	Adc	$R_L = 100 \text{ Kohms}$
Minimum No Load Output Voltage	1500	Vrms	$V_{in} = 12.00 \text{ Vdc}$
Frequency	37 typ	Khz	$V_{in} = 12.00 \text{ Vdc}$
Output Current per tube	6.0	marms	$R_L = 100 \text{ Kohms}$
Efficiency	74	%	Typical
The maximum input current (which indicates an overload condition) is 1.0 Adc maximum			

Inverters specifically designed to match most popular LCD modules are also available. Contact your authorized distributor or ERG direct.



Pin Descriptions

Input Connector		Output Connectors	
MOLEX 532-61-0890		JST SM02(8.0)B-BHS1TB	
J2-1	Vin	J1-1	ACout
J2-2	Vin	J1-2	Common
J2-3	GND		
J2-4	GND		
J2-5	Enable	J3-1	ACout
J2-6	Control	J3-2	Common
J2-7,8	N/C		

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Absolute Maximum Ratings (Note 1)

Rating	Symbol	Value	Units
Input Voltage	V_{in}	-0.3 to +13.2	V_{DC}
Disable	$V_{Disable}$	-0.3 to $V_{in} + 0.3$	V_{DC}
Control	$V_{Control}$	-0.3 to $V_{in} + 0.3$	V_{DC}
Operating Temperature	T_a	0 to +85	°C
Storage Temperature	T_s	-40 to +85	°C

Recommended Operating Conditions

Rating	Symbol	Value	Units
Input Voltage	V_{in}	+6 to 13.2	V_{DC}
Operating Temperature <small>(Note 2)</small>	T_a	0 to +50	°C

Electrical Characteristics

Unless otherwise noted $V_{in} = 12.00$ Volts DC , $T_a = 25$ °C and unit has been running for 20 minutes.

Characteristic	Symbol	Min	Typ	Max	Units
Inverter					
Input Current	I_{in}	-	.8	-	A_{DC}
Input Ripple Current	I_{rip}	-	20	-	mA pk-pk
Operating Frequency	F_o	32	37	42	KHz
Efficiency	η	-	74	-	%
Output Voltage (no load)	V_{start}	1500	-	-	V
Output Voltage (with lamp)	V_{out}	-	600	-	V
Output Current (per tube)	I_{out}	-	6	-	mArms
Enable (pin J2-5)					
Turn-Off Threshold	V_{thoff}	0	-	1	V
Turn-On Threshold	V_{thon}	2.5	-	V_{in}	V
Impedance to V_{in}	$R_{Disable}$	9.5	10.0	10.5	kOhms

(Note 1) Reliable and predictable operation of the device is not guaranteed with applied stresses at or beyond those listed in "Absolute Maximum Ratings". Operation at these limits may reduce device reliability and is therefore not recommended. Please refer to "Recommended Operating Conditions" for reliable operation of the device.

(Note 2) Reliable operation above 50°C is possible if airflow is provided.



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D Series

Onboard PWM

Unless otherwise noted $V_{in} = 12.00$ Volts DC , $T_a = 25$ °C and unit has been running for 5 minutes.

Characteristic	Symbol	Min	Typ	Max	Units
Frequency	f_{pwm}	-	160	-	Hz
Control Input Bias Current	I_{cbias}	-	-	10	uA

Pin Descriptions

Vin	Input voltage to the inverter. The two pins should be connected for optimum reliability and efficiency.
GND	Inverter ground. The two pins should be connected for optimum reliability and efficiency.
Control	Analog voltage input to the onboard pulse width modulator. Increasing this voltage increases the off time of the onboard PWM resulting in decreased brightness. The inverter is full on when this voltage is near inverter ground.
Enable	Inverter Enable. Pull this pin low to disable inverter operation. This pin must be high to enable the inverter. The onboard PWM is always utilized.

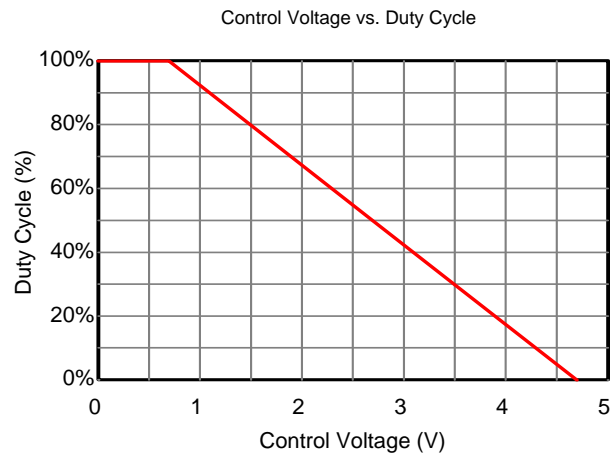
Application information

The LD series of inverters is designed to power up to four cold cathode fluorescent tubes with combined power from twelve watts. An external analog control interfaces with an onboard pulse width modulator to provide dimming control. The LD inverter can reliably dim to less than 5% duty cycle. Graph 1 shows the relationship of relative brightness to duty cycle for a typical backlight assembly.

External shutdown of the inverter is accomplished using the Enable pin. Pulling this pin low (below V_{thoff}) disables the inverter. Enabling the inverter is accomplished by pulling this pin high (above V_{thon}).

If analog voltage dimming is required, the analog voltage is applied to the Control pin. Figure 1 shows how to connect the inverter for onboard PWM operation. Graph 2 shows the relationship of PWM duty cycle to input control voltage.

If an external PWM is used, simply connect the Enable pin to the PWM source and connect the Control pin to inverter ground. If the onboard PWM is used, connect the analog voltage to the Control pin.



Graph 1

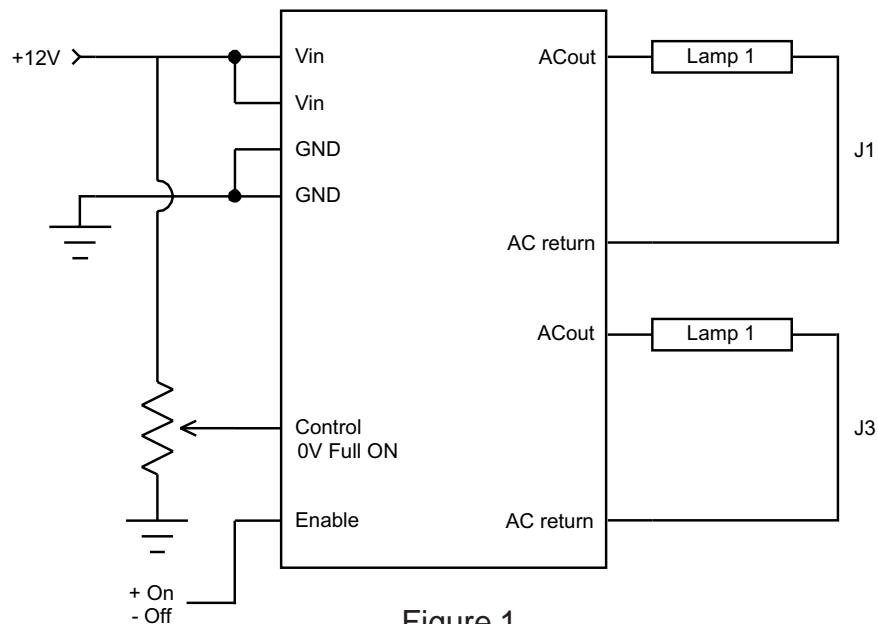


Figure 1



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